Exhibit 18

Doc Code: PET.OP
Document Description: Petition for Review by the Office of Petitions

PTO/SB/64 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PETITION FOR REVIVAL OF AN APPLICATION FOR PATENT ABANDONED UNINTENTIONALLY UNDER 37 CFR 1.137(b)	Docket Number (Optional) 1959-11

First named inventor: Marcus da Silva

Application No.: 10/700,329 Art Unit: 2617

Filed: November 3, 2003 Examiner: Justin Ye Lee

Title: Directed Wireless Communication

Attention: Office of Petitions
Mail Stop Petition
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450
FAX (571) 273-8300

NOTE: If information or assistance is needed in completing this form, please contact Petitions Information at (571) 272-3282.

The above-identified application became abandoned for failure to file a timely and proper reply to a notice or action by the United States Patent and Trademark Office. The date of abandonment is the day after the expiration date of the period set for reply in the office notice or action plus any extensions of time actually obtained.

APPLICANT HEREBY PETITIONS FOR REVIVAL OF THIS APPLICATION

NOTE: A grantable petition requires the following items:
(1) Petition fee;
(2) Reply and/or issue fee;
(3) Terminal disclaimer with disclaimer fee - required for all utility and plant applications filed before June 8, 1995; and for all design applications; and
(4) Statement that the entire delay was unintentional

1. Petition Fee

☑ Small entity-fee $ 810.00 (37 CFR 1.17(m)). Application claims small entity status. See 37 CFR 1.27. (previously paid)

☐ Other than small entity-fee $ _____ (37 CFR 1.17(m))

2. Reply and/or fee

A. The reply and/or fee to the above-noted Office action in the form of amendment (identify type of reply):

☐ has been filed previously on _____.

☑ is enclosed herewith.

B. The issue fee and publication fee (if applicable) of $_____.

☐ has been paid previously on _____.

☐ is enclosed herewith.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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3. Terminal disclaimer with disclaimer fee

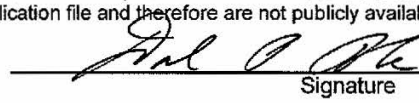
☑ Since this utility/plant application was filed on or after June 8, 1995, no terminal disclaimer is required.

☐ A terminal disclaimer (and disclaimer fee (37 CFR 1.20(d)) of $_____for a small entity or $_____ for other than a small entity) disclaiming the required period of time is enclosed herewith (see PTO/SB/63).

4. STATEMENT: The entire delay in filing the required reply from the due date for the required reply until the filing of a grantable petition under 37 CFR 1.137(b) was unintentional. [NOTE: The United States Patent and Trademark Office may require additional information if there is a question as to whether either the abandonment or the delay in filing a petition under 37 CFR 1.137(b) was unintentional (MPEP 711.03(c), subsections (III)(C) and (D)).]

WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.



Signature

11/8/10
Date

Daniel P. Burke
Type or Printed name

30,735
Registration Number, If applicable

240 Townsend Square
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Oyster Bay, NY 11771
Address

Enclosures:

☐ Fee Payment

☑ Reply

☐ Terminal Disclaimer Form

☐ Additional sheets containing statements establishing unintentional delay

☑ Other: Renewed Petition; RCE Transmittal; Power of Attorney; 3.73(b) Statement

CERTIFICATE OF MAILING OR TRANSMISSION [37 CFR 1.8(a)]

I hereby certify that this correspondence is being:

☐ Deposited with the United States Postal Service on the date shown below with sufficient postage as first class mail in an envelope addressed to: Mail Stop Petition, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22313-1450.

☐ Transmitted by facsimile on the date shown below to the United States Patent and Trademark Office at (571) 273-8300.

Date

Signature

Typed or printed name of person signing certificate

PTO/SB/81 (01-09)
Approved for use through 11/30/2011. OMB 0651-0035
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

POWER OF ATTORNEY OR REVOCATION OF POWER OF ATTORNEY WITH A NEW POWER OF ATTORNEY AND CHANGE OF CORRESPONDENCE ADDRESS

Application Number	10/700,329
Filing Date	November 3, 2003
First Named Inventor	Marcus da Silva
Title	Directed Wireless Communication
Art Unit	2617
Examiner Name	Justin Ye Lee
Attorney Docket Number	1959-11

I hereby revoke all previous powers of attorney given in the above-identified application.

☐ A Power of Attorney is submitted herewith.

OR

☐ I hereby appoint Practitioner(s) associated with the following Customer Number as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

OR

☒ I hereby appoint Practitioner(s) named below as my/our attorney(s) or agent(s) to prosecute the application identified above, and to transact all business in the United States Patent and Trademark Office connected therewith:

Practitioner(s) Name	Registration Number
Daniel P. Burke	30,735

Please recognize or change the correspondence address for the above-identified application to:

☐ The address associated with the above-mentioned Customer Number.

OR

☒ The address associated with Customer Number: 81178

OR

☐ Firm or Individual Name	Daniel P. Burke				
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City	Oyster Bay	State	New York	Zip	11771
Country	US				
Telephone	516-802-0560	Email	dburke@dpburke.com		

I am the:

☐ Applicant/Inventor.

OR

☒ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) (Form PTO/SB/96) submitted herewith or filed on _____.

SIGNATURE of Applicant or Assignee of Record

Signature		Date	4/13/2010
Name	ADRIAN ZAJAC	Telephone	212 400 7950
Title and Company	President, YR Communications LLC		

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ *Total of _____ forms are submitted.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/SB/96 (07-09)
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STATEMENT UNDER 37 CFR 3.73(b)

Applicant/Patent Owner: Marcus da Silva, et. al.

Application No./Patent No.: 10/700329 Filed/Issue Date: 11/3/2003

Titled: Directed wireless communication

XR Communications LLC (Name of Assignee), a Limited Liability Company (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.

states that it is:

1. [X] the assignee of the entire right, title, and interest in;

2. [ ] an assignee of less than the entire right, title, and interest in (The extent (by percentage) of its ownership interest is _____ %); or

3. [ ] the assignee of an undivided interest in the entirety of (a complete assignment from one of the joint inventors was made)

the patent application/patent identified above, by virtue of either:

A. [ ] An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel _____, Frame _____, or for which a copy therefore is attached.

OR

B. [X] A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

1. From: Silva, Marcus Da; Crilly, Jr., William J. et al. To: Vivato, Inc.

The document was recorded in the United States Patent and Trademark Office at Reel 014835, Frame 0270, or for which a copy thereof is attached.

2. From: Vivato, Inc. To: Wayout Wireless, LLC

The document was recorded in the United States Patent and Trademark Office at Reel 018313, Frame 0608, or for which a copy thereof is attached.

3. From: Wayout Wireless, LLC To: Vivato Networks, LLC

The document was recorded in the United States Patent and Trademark Office at Reel 019704, Frame 0789, or for which a copy thereof is attached.

[X] Additional documents in the chain of title are listed on a supplemental sheet(s).

[ ] As required by 37 CFR 3.73(b)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (*i.e.*, a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

Signature — Date: 4/26/10

Daniel P. Burke — Printed or Typed Name

Attorney of Record — Title

A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

4. From: Vivato Networks, LLC To: Vivato Networks Holdings, LLC
The document was recorded in the United States Patent and Trademark Office at Reel: 020213, Frame: 0950, or for which a copy thereof is attached.

5. From: Vivato Networks Holdings, Inc., Formerly Vivato Networks Holdings, LLC
To: Aequitas Equipment Finance, LLC
The document was recorded in the United States Patent and Trademark Office at Reel: 022783, Frame: 0433, or for which a copy thereof is attached.

6. From: Aequitas Equipment Finance, LLC To: XR Communications LLC
The document was recorded in the United States Patent and Trademark Office at Reel: 023691, Frame: 0645, or for which a copy thereof is attached.

PATENT
DOCKET: 1959-11
CONF. NO.: 5147

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.:		10/700,329
APPLICANT	:	Marcus da Silva et al.
TITLE	:	DIRECTED WIRELESS COMMUNICATION
FILED	:	November 3, 2003
EXAMINER	:	Lee, Justin Ye
TC/A.U	:	2617

FILED VIA EFS

COMMISSIONER FOR PATENTS
P. O. Box 1450
Alexandria, Virginia 22313-1450

AMENDMENT

Dear Sir:

In response to the Office Action mailed March 17, 2008, please amend the above-identified application as follows:

Listing of Claims begin on page 2 of this paper

Remarks/Arguments begin on page 22 of this paper

Listing of Claims

The following listing of claims will replace all prior versions, and listings, of claims in the application:

Claims:

1. (Previously Amended) A Wi-Fi switch comprising:

a multi-beam directed signal system configured for 802.11 specification data packet wireless computing communication with a 802.11 client computing device; and

an antenna assembly configured to receive and emanate wireless communication within a directed beam with the computing device,

wherein the multi-beam directed signal system is configured to determine and adjust, by complementary beam-forming to increase side lobe levels, a transmission peak for a particular directed beam in a non-omni-directional manner based on operational information associated with signal routing and further configured to direct a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

2. (Previously Presented) A Wi-Fi switch as recited in claim 1, wherein the multi-beam directed signal system is further configured to generate a second directed wireless computing communication to a second 802.11 client computing device and wherein the antenna assembly is further configured to receive the second wireless communication and emanate a second directed computing communication beam for additional data communication with the second computing device.

3. (Previously Presented) A Wi-Fi switch as recited in claim 1, wherein:

the multi-beam directed signal system is further configured to generate a second directed wireless computing communication to a second 802.11 client computing device;

the antenna assembly is further configured to receive the second wireless computing communication and emanate a second directed communication beam for additional data communication with the second computing device; and

the antenna assembly is further configured to emanate the directed communication beam such that only the computing device will receive the data communication, and further emanate the second directed communication beam such that only the second computing device will receive additional data communication.

4. (Previously Presented) A Wi-Fi switch as recited in claim 1, wherein:

the multi-beam directed signal system is multi-channel and further configured for directed wireless computing communication with a second 802.11 client computing device;

the antenna assembly is further configured to emanate the directed communication beam for data communication with the computing device via a first channel; and

the antenna assembly is further configured to emanate a second directed communication beam for additional data communication with the second computing device via a second channel.

5. (Previously Presented) A Wi-Fi switch as recited in claim 1 wherein:

the multi-beam directed signal system is multi-channel and further configured for directed wireless computing communication with a second 802.11 client computing device;

the antenna assembly includes a phased array of antenna elements each configured to emanate a directed communication beam;

the antenna assembly is further configured to emanate the directed communication beam from a first antenna element for the data communication with the computing device via a first channel; and

the antenna assembly is further configured to emanate a second directed communication beam from a second antenna element for additional data communication with the second computing device via a second channel.

6. (Previously Presented) A Wi-Fi switch as recited in claim 1, wherein:

the multi-beam directed signal system is multi-channel and further configured for simultaneous directed wireless computing communication with a second 802.11 client computing device;

the antenna assembly is further configured to emanate the directed communication beam for data communication transmission to the computing device via a first channel; and

the antenna assembly is further configured to emanate a second directed communication beam for data communication reception from the second computing device via a second channel.

7. (Previously Presented) A Wi-Fi switch as recited in claim 1, wherein the multi-beam directed signal system is further configured for simultaneous directed wireless transmission to the computing device and directed wireless reception from a second 802.11 client computing device.

8. (Previously Presented) A Wi-Fi switch as recited in claim 1, wherein the antenna assembly is further configured to emanate the directed wireless communication beam as an electromagnetic signal that includes transmission peaks and transmissions nulls within a coverage area of the communication beam.

9. (Previously Presented) A Wi-Fi switch as recited in claim 1, wherein:

the antenna assembly is further configured to emanate the directed wireless communication beam as an electromagnetic signal that includes a signal transmission peak within a first coverage area and a signal transmission null within a second coverage area; and

the antenna assembly is further configured to emanate a second directed wireless communication beam as a second electromagnetic signal that includes a second signal transmission peak within the second coverage area and a second signal transmission null within the first coverage area.

10. (Previously Presented) A Wi-Fi switch as recited in claim 1, wherein the antenna assembly is further configured to emanate a second directed wireless communication beam for the data communication with the computing device when the directed wireless communication beam is determined ineffective for data communication.

11. (Previously Presented) A Wi-Fi switch as recited in claim 1, wherein:

the multi-beam directed signal system is further configured to determine when the directed wireless communication beam is ineffective for data communication with the computing device, and is further configured to generate the directed wireless communication for the data communication via a second directed wireless communication beam; and

the antenna assembly is further configured to emanate the second directed wireless communication beam for the data communication with the computing device.

12. (Previously Presented) A Wi-Fi switch as recited in claim 1, wherein the antenna assembly is further configured to emanate multiple directed communication beams, and wherein the multi-beam directed signal system includes signal

coordination logic that monitors the multiple directed communication beams each as an individual access point.

13. (Previously Presented) A Wi-Fi switch as recited in claim 1, wherein the multi-beam directed signal system includes signal coordination logic that controls a directed wireless transmission to the computing device and directed wireless reception from a second computing device such that the directed wireless transmission does not interfere with the directed wireless reception.

14-15. (Cancelled).

16. (Previously Amended) A method, comprising:

generating from a Wi-Fi switch a directed wireless communication for 802.11 specification data packet communication with a 802.11 client computing device;

receiving the directed wireless communication at an antenna assembly; emanating a directed communication beam, associated with a transmission peak, which is adjusted relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device; and

directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

17. (Previously Presented) A method as recited in claim 16, further comprising: generating a second directed wireless communication for additional data communication with a second computing device;

receiving the second directed wireless communication at the antenna assembly; and

emanating a second directed communication beam, adjusted for a second transmission peak) for the additional data communication with the second computing device.

18. (Previously Presented) A method as recited in claim 16, further comprising:

generating a second directed wireless communication for additional data communication with a second computing device;

receiving the second directed wireless communication at the antenna assembly;

emanating a second directed communication beam, adjusted for a second transmission peak, for the additional data communication with the second computing device; and

wherein the directed communication beam is emanated such that only the computing device will receive the data communication, and the second directed communication beam is emanated such that only the second computing device will receive additional data communication.

19. (Previously Presented) A method as recited in claim 16, further comprising:

generating a second directed wireless communication for additional data communication with a second computing device;

receiving the second directed wireless communication at the antenna assembly;

emanating a second directed communication beam, adjusted for a second transmission peak, for the additional data communication with the second computing device; and

wherein the directed communication beam is emanated from a first antenna element of the antenna assembly, and the second directed communication beam is emanated from a second antenna element of the antenna assembly.

20. (Previously Presented) A method as recited in claim 16, further comprising emanating a second directed communication beam, adjusted for a second transmission peak, for data communication reception from a second computing device, and wherein

emanating the directed communication beam includes emanating the directed communication beam for data communication transmission to the computing device.

21. (Previously Presented) A method as recited in claim 16, further comprising: transmitting the data communication to the computing device via the directed communication beam adjusted for a transmission peak;

receiving a second data communication from a second computing device via a second directed communication beam; and

wherein transmitting the data communication and receiving the second directed data communication is simultaneous.

22. (Previously Presented) A method as recited in claim 16, wherein emanating the directed communication beam includes emanating an electromagnetic signal that includes transmission peaks along a signal path during data communication with the computing device and transmissions nulls in another direction within a coverage area of the directed communication beam.

23. (Previously Presented) A method as recited in claim 16, further comprising: determining that the directed communication beam is ineffective for the data communication with the computing device; and

emanating a second directed communication beam for the data communication with the computing device.

24. (Previously Presented) A method as recited in claim 16, further comprising:

transmitting the data communication to the computing device via the directed communication beam;

receiving a second data communication from a second computing device via a second directed communication beam; and

controlling transmitting the data communication such that the data communication does not interfere with receiving the second data communication.

25. (Withdrawn) A multi-beam directed signal system, comprising:

signal coordination logic configured to coordinate directed wireless communication with client devices;

a transmit beam-forming network configured to route data communication transmissions to one or more of the client devices via directed communication beams that are emanated from an antenna assembly; and

a receive beam-forming network configured to receive data communication receptions from one or more of the client devices via the directed communication beams.

26. (Withdrawn) A multi-beam directed signal system as recited in claim 25, further comprising:

receiver/transmitters each configured to transmit a data communication transmission to one or more of the client devices, and each further configured to receive a data communication reception from one or more of the client devices;

wherein the transmit beam-forming network includes transmit ports that each couple an individual antenna element of the antenna assembly to a receiver/transmitter; and

wherein the receive beam-forming network includes receive ports that each couple an individual antenna element of the antenna assembly to a receiver/transmitter.

27. (Withdrawn) A multi-beam directed signal system as recited in claim 25, further comprising:

multiple channels each corresponding to a receiver/transmitter configured to transmit a data communication transmission to a client device and receive a data communication reception from the client device; and

a scanning receiver configured to receive a data communication reception from a client device and determine which of the multiple channels provides acceptable data communication transmission and reception with the client device.

28. (Withdrawn) A multi-beam directed signal system as recited in claim 25, further comprising a scanning receiver configured to scan the directed communication beams and monitor for the data communication receptions from one or more of the client devices.

29. (Withdrawn) A multi-beam directed signal system as recited in claim 25, further comprising:

a memory component configured to maintain information corresponding to one or more of the client devices, the information including at least one of a transmit power level, a data transmit rate, an antenna direction, quality of service data, and timing data; and

wherein the signal coordination logic is further configured to coordinate the directed wireless communication with one or more of the client devices based on the information maintained with the memory component.

30. (Withdrawn) A multi-beam directed signal system as recited in claim 25, further comprising medium access controllers each corresponding to a directed communication beam and configured to communicate data packets for the directed wireless communication between the multi-beam directed signal system and a communication network.

31. (Withdrawn) A multi-beam directed signal system as recited in claim 25, wherein the transmit beam-forming network is further configured to transmit energy on a side lobe of a directed communication beam corresponding to a first client device such that a second client device will detect the side lobe energy and recognize that a data communication transmission is being emanated to the first client device via the directed communication beam.

32. (Withdrawn) A multi-beam directed signal system as recited in claim 25, wherein the signal coordination logic is further configured to coordinate that only a first client device will receive a first directed wireless communication via a first communication beam, and that only a second client device will receive a second directed wireless communication via a second communication beam.

33. (Withdrawn) A multi-beam directed signal system as recited in claim 25, wherein the signal coordination logic is further configured to coordinate a simultaneous data communication transmission to a first client device via a first directed

communication beam and a data communication reception from a second client device via a second directed communication beam.

34. (Withdrawn) A multi-beam directed signal system as recited in claim 25, wherein:

the signal coordination logic is further configured to determine when a directed communication beam is ineffective for a data communication transmission to a client device; and

the transmit beam-forming network is further configured to route the data communication transmission to the client device via a second directed communication beam.

35. (Withdrawn) A multi-beam directed signal system as recited in claim 25 wherein the signal coordination logic is further configured to monitor the directed communication beams each as an individual access point.

36. (Withdrawn) A multi-beam directed signal system as recited in claim 25, wherein the signal coordination logic is further configured to coordinate a data communication transmission to a first client device and a data communication reception from a second client device such that the data communication transmission does not interfere with the data communication reception.

37. (Withdrawn) A Wi-Fi switch comprising the multi-beam directed signal system as recited in claim 25.

38. (Withdrawn) A Wi-Fi switch for 802.11 specification data packet communication comprising the multi-beam directed signal system as recited in claim 25.

39. (Withdrawn) A method comprising:

coordinating directed wireless communication with client devices via directed communication beams emanated from an antenna assembly;

routing data communication transmissions through a transmit beam-forming network to antenna elements of the antenna assembly such that a data communication transmission is communicated to a client device via a directed communication beam; and

receiving data communication receptions through a receive beam-forming network from the antenna elements of the antenna assembly such that a data communication reception is received from a client device via a directed communication beam.

40. (Withdrawn) A method as recited in claim 39, further comprising:

receiving a data communication reception from a client device with a scanning receiver; and

determining which of multiple channels provides acceptable data communication transmission and reception with the client device.

41. (Withdrawn) A method as recited in claim 39 further comprising

monitoring the directed communication beams for the data communication receptions from one or more of the client devices.

42. (Withdrawn) A method as recited in claim 39 further comprising:

maintaining information corresponding to one or more of the client devices, the information including at least one of a transmit power level, a data transmit rate, an antenna direction quality of service data, and timing data; and

wherein coordinating the directed wireless communication includes coordinating a directed wireless communication with a client device based on the information that is maintained.

43. (Withdrawn) A method as recited in claim 39, further comprising generating a directed communication beam as an electromagnetic signal that includes transmission peaks and transmission nulls within a coverage area of the directed communication beam.

44. (Withdrawn) A method as recited in claim 39 further comprising transmitting energy on a side lobe of a directed communication beam corresponding to a first client device such that a second client device will detect the side lobe energy and recognize that a data communication transmission is being emanated to the first client device via the directed communication beam.

45. (Withdrawn) A method as recited in claim 39, further comprising:

determining when a directed communication beam is ineffective for a data communication transmission to a client device; and

routing the data communication transmission to the client device via a second directed communication beam.

46. (Withdrawn) A method as recited in claim 39, wherein coordinating directed wireless communication includes coordinating that only a first client device will receive a first directed wireless communication via a first communication beam, and that only a second client device will receive a second directed wireless communication via a second communication beam.

47. (Withdrawn) A method as recited in claim 39, wherein coordinating directed wireless communication includes coordinating a simultaneous data communication transmission to a first client device via a first directed communication beam and a data communication reception from a second client device via a second directed communication beam.

48. (Withdrawn) A method as recited in claim 39, wherein coordinating directed wireless communication includes coordinating a data communication transmission to a first client device and a data communication reception from a second client device such that the data communication transmission does not interfere with the data communication reception.

49. (Withdrawn) One or more computer-readable media comprising computer executable instructions that, when executed, direct a wireless communication system to:

coordinate directed wireless communication with client devices via directed communication beams emanated from an antenna assembly;

route data communication transmissions through a transmit beam-forming network to antenna elements of the antenna assembly such that a data communication transmission is communicated to a client device via a directed communication beam; and

receive data communication receptions through a receive beam-forming network from the antenna elements of the antenna assembly such that a data communication reception is received from a client device via a directed communication beam.

50. (Withdrawn) One or more computer-readable media as recited in claim 49, further comprising computer executable instructions that, when executed, direct the wireless communication system to;

receive a data communication reception from a client device with a scanning receiver; and

determine which of multiple channels provides acceptable data communication transmission and reception with the client device.

51. (Withdrawn) One or more computer-readable media as recited in claim 49, further comprising computer executable instructions that, when executed, direct the wireless communication system to monitor the directed communication beams for the data communication receptions from one or more of the client devices.

52. (Withdrawn) One or more computer-readable media as recited in claim 49, further comprising computer executable instructions that, when executed, direct the wireless communication system to:

maintain information corresponding to one or more of the client devices, the information including at least one of a transmit power level, a data transmit rate, an antenna direction quality of service data, and timing data; and

coordinate a directed wireless communication with a client device based on the information that is maintained.

53. (Withdrawn) One or more computer-readable media as recited in claim 49, further comprising computer executable instructions that, when executed, direct the wireless communication system to generate a directed communication beam as an

electromagnetic signal that includes transmission peaks and transmission nulls within a coverage area of the directed communication beam.

54. (Withdrawn) One or more computer-readable media as recited in claim 49, further comprising computer executable instructions that, when executed, direct the wireless communication system to:

generate a directed communication beam as an electromagnetic signal that includes a signal transmission peak within a first coverage area and a signal transmission null within a second coverage area; and

generate a second directed communication beam as a second electromagnetic signal that includes a second signal transmission peak within the second coverage area and a second signal transmission null within the first coverage area.

55. (Withdrawn) One or more computer-readable media as recited in claim 49, further comprising computer executable instructions that when executed, direct the wireless communication system to transmit energy on a side lobe of a directed communication beam corresponding to a first client device such that a second client device will detect the side lobe energy and recognize that a data communication transmission is being emanated to the first client device via the directed communication beam.

56. (Withdrawn) One or more computer-readable media as recited in claim 49, further comprising computer executable instructions that, when executed, direct the wireless communication system to:

determine when a directed communication beam is ineffective for a data communication transmission to a client device; and

route the data communication transmission to the client device via a second directed communication beam.

57. (Withdrawn) One Of more computer-readable media as recited in claim 49, further comprising computer executable instructions that, when executed, direct the wireless communication system to coordinate that only a first client device receives a first directed wireless communication via a first communication beam, and that only a second client device receives a second directed wireless communication via a second communication beam.

58. (Withdrawn) One or more computer-readable media as recited in claim 49, further comprising computer executable instructions that, when executed, direct the wireless communication system to coordinate a simultaneous data communication transmission to a first client device via a first directed communication beam and a data communication reception from a second client device via a second directed communication beam.

59. (Withdrawn) One or more computer-readable media as recited in claim 49, further comprising computer executable instructions that, when executed, direct the wireless communication system to coordinate a data communication transmission to a first client device and a data communication reception from a second client device such that the data communication transmission does not interfere with the data communication reception.

60. (Withdrawn) A method, comprising:

associating a client device with a directed communication beam;

receiving signal strength indications for data packets received from the client device;

calculating a signal strength average for the client device from the received signal strength indications; and

maintaining the client device association with the directed communication beam in an event that the signal strength average indicates that the directed communication beam provides an effective communication link.

61. (Withdrawn) A method as recited in claim 60, further comprising:

sampling adjacent signal strength indications of an adjacent directed communication beam;

calculating a second signal strength average for the adjacent directed communication beam;

comparing the signal strength average and the second signal strength average;

maintaining the client device association with the directed communication beam in an event that the signal strength average indicates that the directed communication beam provides a better communication link than the adjacent directed communication beam.

62. (Withdrawn) A method as recited in claim 60, further comprising:

sampling adjacent signal strength indications of an adjacent directed communication beam;

calculating a second signal strength average for the adjacent directed communication beam;

comparing the signal strength average and the second signal strength average;

disassociating the client device from the directed communication beam in an event that the second signal strength average indicates that the adjacent directed communication beam provides a better communication link than the directed communication beam; and

reassociating the client device with the adjacent directed communication beam.

63. (Withdrawn) A method as recited in claim 60, further comprising:

sampling adjacent signal strength indications of an adjacent directed communication beam;

calculating a second signal strength average for the adjacent directed communication beam;

comparing the signal strength average and the second signal strength average;

disassociating the client device from the directed communication beam in an event that the signal strength average indicates that the directed communication beam is an ineffective communication link; and

reassociating the client device with the adjacent directed communication beam in an event that the second signal strength average indicates that the adjacent directed communication beam provides an effective communication link.

REMARKS/ARGUMENTS

Status of the Claims

Claims 1-13 and 16-24 stand rejected.

Claims 14 and 15 are cancelled. Claims 25-63 are presently withdrawn pursuant to a restriction requirement.

As a result, Claims 1-13 and 16-63 are now pending in this application.

Claim Rejections - 35 USC § 103

Claims 1-13 and 16-24 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Periyalwar (US 6,611,695), as taken in view of Adachi et al. (US 2003/0064752 A1), and further in view of Corbell et al. (US 3,747,109).

Regarding claim 1, it is asserted that Periyalwar discloses a wireless communication system, comprising: a multi-beam directed signal system configured for directed wireless computing communication with a computing device; and an antenna assembly configured to receive the directed wireless communication and emanate wireless communication within a directed beam with the computing device.

Applicant again notes that the Periyalwar reference is not conceded to be prior art, and reserves the right to swear behind the asserted reference at a later date, if necessary.

Applicants' application and independent claims, as amended, relate to a data communication system for computing devices such as a local area network (LAN) or wide area network (WAN) computing network. As recited in the Background section,

one shortcoming of wireless data communication is a relatively low bandwidth compared to a wired LAN or WAN system.

The Periyalwar reference describes a method and apparatus for assigning frequency channels to a particular beam within an omni directional multi-beam cellular voice phone system having channels which communicate equally in all directions. In Periyalwar, a (fixed) geographic region is divided up into a plurality of (fixed) hexagonally-shaped "cells," each cell having a central base station for receiving and transmitting to and from wireless telecommunication devices located within the cell. Each cell is sectored, and/or subdivided, and thereafter the fixed geographical cell area is serviced by a number of beams using directional antennae.

Thus, Periyalwar concerns itself with a series of inter-related fixed, omni-directional communication beams, and the means for managing and transferring communications from a cellular communication device that is moving among and between such cells. As shown in Figure 1 of the Periyalwar reference, the radial extent of each beam is set to reach to the cell boundary.

The Periyalwar reference relates to means for assessing channel quality within each such beam, and select an acceptable channel from among those that are available. The Periyalwar reference does not describe any mechanism for adjusting beam characteristics, such as by associating a transmission peak and/or null with a particular communication beam. The Periyalwar reference does not teach or disclose any manipulation of the beam characteristics whatsoever, or that any beam result in anything other than a geographically-fixed cell boundary.

Applicants' disclose and claim a system for making adjustments to a multi-beam directed signal system that is configured to determine a transmission peak for a particular directed wireless computing communication beam in a non-omni directional manner based on operational information associated with signal routing. The complementary beam-forming both increases side lobe levels, and works to direct a transmission null in a particular direction. In this manner, more power can be associated with a particular signal path and/or communication beam (i.e., associated with a transmission peak), to increase communication range, to increase data integrity or data security.

Applicants' independent Claim 1 recites "the multi-beam directed signal system is configured to determine and adjust, by beam forming, a transmission peak for a particular directed wireless computing communication beam in a non-omni directional manner based on operational information associated with signal routing." This is very different than simply choosing a channel in an omni-directional cellular voice phone system as described the Periyalwar reference, for the purpose of managing signal strength during movement of mobile devices within a multi-beam cellular communications system.

The Adachi reference is cited as disclosing a multi-beam directed signal system wherein the multi-beam directed signal system is configured to determine and adjust, by complementary beam-forming, a transmission peak for a particular directed beam in a non-omni-directional manner based on operational information associated with signal routing, and further configured to direct a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the

particular direction (citing Fig. 12 and 15 and paragraphs 148, 151, 162, 164, 167, and 171- 174).

The Adachi application if further cited as teaching that the beam is adjusted to the direction of a device it is communicating to and narrows the beam on the device to reduce the null effect and maintaining power consumption for longer distance devices (complementary beam-forming). A transmission null is allegedly directed to maximize the power associated with the transmission peak and minimize interference in the particular direction, by directing the beam in a particular direction and narrowing it.

Applicant does not admit that the Adachi application is prior art and reserves the right to swear behind the same at a later date. The present application (Serial No. 10/700,329) was filed on November 3, 2003, and claimed the benefit of a related U.S. Provisional Application Serial No. 60/423,660, entitled "A Wireless Data Packet Communications System," filed on November 4, 2002 (see paragraph 1). Thus the effective filing date of the present application is November 4, 2002.

The Adachi application was published on April 3, 2003, on an application (Serial No. 10/242,632) filed September 13, 2002. Applicant reserves the right to swear behind the Adachi Application at a later date.

Nonetheless, in the interest of advancing the prosecution of the present application, Applicant respectfully submits that the elements and limitations of the claims of the present application can be distinguished from the teachings of the Periyalwar and Adachi references for at least the following reasons. Applicants'

independent claim 1 presently recites:

> a multi-beam directed signal system configured for 802.11 specification data packet wireless computing communication with a 802.11 client computing device; and
>
> an antenna assembly configured to receive and emanate wireless communication within a directed beam with the computing device,
>
> wherein the multi-beam directed signal system is configured to determine and adjust, by complementary beam-forming to increase side lobe levels, a transmission peak for a particular directed beam in a non-omni-directional manner based on operational information associated with signal routing, and further configured to direct a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Applicants' independent claim 16 presently recites:

> generating from a Wi-Fi switch a directed wireless communication for 802.11 specification data packet communication with a 802.11 client computing device; receiving the directed wireless communication at an antenna assembly;

emanating a directed communication beam associated with a transmission peak, which is adjusted relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner for the data communication with the computing device; and

directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

In response to an earlier Office Action, Applicant argued that the Adachi application does not describe, teach, or suggest, and is not equivalent to, complementary beam forming. That is, adjusting and narrowing does not equate to complementary beam forming as defined by the present disclosure, which entails more than mere directed wireless communications.

The cited portions of the Adachi application (Figs. 12 and 15, and paragraphs 148, 151, 162, 164, 167 and 171-174) appear to merely describe directing a communication beam, for example, by using weighting factors associated with a directional antenna, to reduce the influences of interference on an unintended base station or terminal using an identical channel. The reference, however, does not teach complementary beam forming as described above, as the purpose and design of the beam forming in the Adachi application is very different. The Periyalwar reference

does not appear to cure the stated deficiencies in the Adachi application, as acknowledged by the Office Action.

The Adachi Application is directed towards improving communications between base stations without them being influenced by communications between the base station and terminals (see, for example, paragraphs [0011] to [0015] of the Adachi application).

Paragraphs [0114] - [0117] of the present application describe complementary beam forming as "a technique to reduce the effect of communication beam nulls and increase side lobe levels without a severe power penalty to the main beam." Complementary beam-forming, as described in the present application, is utilized as a technique to ensure a minimum transmit power in all directions, by reducing the "hidden beam" effect of nulls in certain directions that may accompany a directional communication beam, such as in Adachi. That is, fanning directional transmit communication beams, as in Adachi, has the side effect of hiding the transmitted energy from some client devices, negatively impacting their carrier sense mechanisms in a network. Since the present invention is intended to be an open network, the hiding of the beam from certain areas or client devices is directly contrary to the purpose of the invention, which is both inclusive as to the range of generation of the beam, and restrictive as to deliberately directing transmission nulls where there is interference and the like.

For example of the difference, a client device can measure the energy transmitted from access points and from other client devices. If a client device cannot detect the presence of other transmissions, due to use of directional communication

beams, it may interpret the medium as being idle and attempt to access the medium, when, in fact, the medium is busy. These competing access attempts have a burdening effect on the performance of the network.

Complementary beam- forming, as claimed and defined by the present application, ensures that multiple transmit beams in arbitrary directions are complemented by another beam in all other directions. The complementary beam does not interfere with the intended beams and increases the probability that other users in the network can detect whether the medium is idle or available for their use, thus contributing to the efficient usage of the network.

The Periyalwar reference, alone or in combination with the Adachi application, does not appear to describe, teach or suggest using complementary beam-forming. Complementary beam-forming is discussed in the specification, as originally filed, at paragraphs 0114 - 0117, among others. Complementary beam-forming ensures, in part, a minimum transmit power in all directions while preserving the shape of the main communication beam, e.g., transmission peak, such that clients other than an intended client device are able to ascertain whether the communication medium is busy or idle (and available).

Finally, the Periyalwar reference, alone or in combination with the Adachi application, does not appear to describe, teach or suggest a multi-beam directed signal system configured to direct a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction. As set forth generally in paragraph 0024, and in more detail in paragraphs

0105 - 0108, of the specification as originally filed, a transmission null occurs in a transmission pattern when a relatively insignificant amount of energy is transmitted in a particular direction.

While it is not the sole deficiency of the Periyalwar and Adachi applications, the Patent Office concedes that those references taken alone or together, do not teach increasing side lobe levels when beam-forming, and for this purpose, the Corbell et al. patent is cited as teaching increasing side lobe levels when beam-forming (col. 7, lines 16-19, the side lobes are increased to cover more area).

It is thus asserted that it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Corbell et al. into the teachings of Periyalwar and Adachi et al. for the purposes of improving the radiation detection within a generally rectangular area (col. 7, lines 16-19).

Corbell et al. teaches an alarm system that adapts Doppler frequency principles to enhance an alarm system using microwave energy (see Column 3, line 52, to Column 4, line 2). The intrusion detection apparatus includes a transmitting aperture adapted to produce a field beam of microwave energy that can be manipulated to fill an area to be monitored for intrusion by a moving body within the field, triggering an alarm at the presence of an intruder.

Corbell et al. does not relate to the field of communications, and, further, the electromagnetic systems employed are different, and employed for a different purpose. Even the section cited in the Office Action seems inapposite, as it states "Applicant has

found that the extension of the side lobes or the use of the essentially laterally projecting flanges improves the radiation detection within a generally rectangular area" (column 7, lines 16-19). The purpose is made clear in the next paragraph of the Corbell application, which notes the desired result as being that the total area of a room or warehouse can be "totally filled with the radiated energy field primarily as a result of the reflective nature of the walls such that the movement in any area will be detected", and will produce "maximum sensitivity to the most significant portion of the area being protected and the intrusion of a body most likely to be encountered." (Column 7, lines 20 – 38).

Corbell et al., even taken with the Periyalwar and Adachi applications, does not disclose Applicants system for affirmatively directing a transmission null along a particular signal path (for example by assigning a zero weighting factor to a particular vector in a routing table) towards an undesired, possibly interfering, device or object, nor suggest how this could achieve a number of benefits described in the specification.

Applicants respectfully submit that the claimed "directing a transmission null" is not described, taught or suggested by the mere absence of a communication beam in a particular direction, nor implied by a discussion of directed communication beams, nor does the manipulation of microwave radiation patterns taught by Corbell et al. cover the deficiency.

Therefore, it would not have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of the Periyalwar and Adachi applications and adapt with the teachings of Corbell et al. for the purposes of without

influencing other communications therefore reducing/preventing interference in the network (paragraph 11).

Regarding claim 2, while Periyalwar discloses a multi-beam directed signal system to multiple discrete cells of a cellular system, within which it is further configured to generate a second directed wireless computing communication to a second computing device, and wherein the antenna assembly is further configured to receive the second wireless communication and emanate a second directed computing communication beam for additional data communication with the second computing device (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 3, while Periyalwar discloses a multi-beam directed signal system for a cellular network that is further configured to generate a second directed wireless computing communication to a second computing device the antenna assembly is further configured to receive the second wireless computing communication and emanate a second directed communication beam for additional data communication with

the second computing device; and the antenna assembly is further configured to emanate the directed communication beam such that only the computing device will receive the data communication, and further emanate the second directed communication beam such that only the second computing device will receive the additional data communication (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 4, while Periyalwar discloses a multi-beam directed signal system for a cellular communications network system that is multi-channel and further configured for directed wireless computing communication with a second computing device; the antenna assembly is further configured to emanate the directed communication beam for data communication with the computing device via a first channel; and the antenna assembly is further configured to emanate a second directed communication beam for additional data communication with the second computing device via a second channel (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more

particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 5, while Periyalwar may disclose a multi-beam directed signal system that is multi-channel and further configured for directed wireless computing communication with a second computing device; the antenna assembly includes a phased array of antenna elements each configured to emanate a communication beam; the antenna assembly is further configured to emanate the directed communication beam from a first antenna element for the data communication with the computing device via a first channel; and the antenna assembly is further configured to emanate a second directed communication beam from a second antenna element for additional data communication with the second computing device via a second Channel (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional

manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 6, while Periyalwar may disclose a multi-beam directed signal system that is multi-channel and further configured for simultaneous directed wireless computing communication with a second computing device, and where the antenna assembly is further configured to emanate the directed communication beam for data communication transmission to the computing device via a first channel; and the antenna assembly is further configured to emanate a second directed communication beam for data communication reception from the second computing device via a second channel (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 7, while Periyalwar may disclose a multi-beam directed signal system that is further configured for simultaneous directed wireless transmission to the computing device and directed wireless reception from a second computing device (cited

for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 8, while Periyalwar may disclose a multi-beam directed signal system that is further configured to emanate the directed communication beam as an electromagnetic signal that includes transmission peaks and transmissions nulls within a coverage area of the communication beam (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 9, while Periyalwar may disclose a multi-beam directed signal system that is further configured to emanate the directed communication beam as an electromagnetic signal that includes a signal transmission peak within a first coverage area and a signal transmission null within a second coverage area; and the antenna assembly is further configured to emanate a second directed communication beam as a second electromagnetic signal that includes a second signal transmission peak within the second coverage area and a second signal transmission null within the first coverage area (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 10, while Periyalwar may disclose a multi-beam directed signal system that include an antenna assembly is further configured to emanate a second directed communication beam for the data communication with the computing device when the directed communication beam is determined ineffective for data communication (cited for the teachings at column 2 lines 5067 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is

not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 11, while Periyalwar may disclose a multi-beam directed signal system that is further configured to determine when the directed communication beam is ineffective for data communication with the computing device, and is further configured to generate the directed wireless communication for the data communication via a second directed communication beam; and the antenna assembly is further configured to emanate the second directed communication beam for the data communication with the computing device (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 12, while Periyalwar may disclose a multi-beam directed signal system that is further configured to emanate multiple directed communication beams, and wherein the multi-beam directed signal system includes signal coordination logic that monitors the multiple directed communication beams each as an individual access point (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.Regarding claim 13-15, while Periyalwar may disclose a multi-beam directed signal system that includes signal coordination logic that controls a directed wireless transmission to the computing device and directed wireless reception from a second computing device such that the directed wireless transmission does not interfere with the directed wireless reception (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor

directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 16, the arguments above regarding Claim 1 and the inadequecies of Periyalwar and Adachi applications, alone or taken with Corbell et al., are reiterated here.

With respect to independent Claim 16, as for Claim 1, the claim includes a limitation of emanating a directed communication beam, associated with a transmission peak which is adjusted relative to other beams of a multi-beam directed signal system by beam fom1ing in a non-omni directional manner, for the data communication with the computing device. The Periyalwar reference describes evaluating the quality of particular channels within a particular beam and a channel selection process based on the evaluation, but does not appear to describe adjusting or changing the communication beam, for example, by emanating a directed communication beam, associated with a transmission peak which is adjusted relative to other beams of a multi-beam directed signal system, for the data communication with the computing device.

And, as for Claim 1, neither the Adachi application nor Corbell et al., supply the missing limitations.

Accordingly, Applicant respectfully requests reconsideration and withdrawal of the 102 rejection of independent Claim 16, as amended, as well as dependent Claims 17-24 which depend from independent Claim 16.

Regarding claim 17, while Periyalwar may disclose generating a second directed wireless communication for additional data communication with a second computing device; receiving the second directed wireless communication at the antenna assembly; and emanating a second directed communication beam, adjusted for a second transmission peak, for the additional data communication with the second computing device (Periyalwar, cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 18, while Periyalwar may disclose generating a second directed wireless communication for additional data communication with a second computing device; receiving the second directed wireless communication at the antenna assembly; emanating a second directed communication beam, adjusted for a second transmission peak, for the additional data communication with the second computing device; and wherein the directed communication beam is emanated such that only the computing device will receive the data communication, and the second directed communication

beam is emanated such that only the second computing device will receive the additional data communication (Periyalwar, cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 19, while Periyalwar may disclose generating a second directed wireless communication for additional data communication with a second computing device; receiving the second directed wireless communication at the antenna assembly; emanating a second directed communication beam, adjusted for a second transmission peak, for the additional data communication with the second computing device; and wherein the directed communication beam is emanated from a first antenna element of the antenna assembly, and the second directed communication beam is emanated from a second antenna element of the antenna assembly (Periyalwar, cited for the teachings at column 2 lines 50-67 and column 3, lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and

adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 20, while Periyalwar may disclose emanating a second directed communication beam, adjusted for a second transmission peak, for data communication reception from a second computing device, and wherein emanating the directed communication beam includes emanating the directed communication beam for data communication transmission to the computing device (Periyalwar, cited for the teachings at column 2 lines -50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 21, while Periyalwar may disclose transmitting the data communication to the computing device via the directed communication beam adjusted for transmission peak; receiving a second data communication from a second computing

device via a second directed communication beam; and wherein transmitting the data communication and receiving the second directed data communication is simultaneous (Periyalwar, cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 22, while Periyalwar may disclose emanating the directed communication beam includes emanating an electromagnetic signal that includes transmission peaks and transmissions nulls within a coverage area of the directed communication beam (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power

associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 23, while Periyalwar may disclose determining that the directed communication beam is ineffective for the data communication with the computing device; and emanating a second directed communication beam for the data communication with the computing device (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

Regarding claim 24, while Periyalwar may disclose transmitting the data communication to the computing device via the directed communication beam; receiving a second data communication from a second computing device via a second directed communication beam; and controlling transmitting the data communication such that the data communication does not interfere with receiving the second data communication (cited for the teachings at column 2 lines 50-67 and column 3 lines 1-54), this is not accomplished the same way as for the claimed invention, and more particularly, this is

not taught within the context of emanating a directed communication beam, associated with a transmission peak, and adjusting it relative to other beams of a multi-beam directed signal system by complementary beam-forming to increase side lobe levels, in a non-omni-directional manner, for the data communication with the computing device, nor directing a transmission null in a particular direction to maximize power associated with the transmission peak and minimize interference in the particular direction.

CONCLUSION

Applicant respectfully submits that all pending claims as amended, are now in condition for allowance. If the Examiner has any questions or comments which may expedite the prosecution of this application, the Examiner is respectfully requested to contact Applicant's attorney at the telephone number set forth below

Respectfully submitted,
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Dated: 11/8/10

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Facsimile: 516-802-0562

Electronic Patent Application Fee Transmittal	
Application Number:	10700329
Filing Date:	03-Nov-2003
Title of Invention:	Directed wireless communication
First Named Inventor/Applicant Name:	Marcus da Silva
Filer:	Daniel P. Burke
Attorney Docket Number:	29988/40000
Filed as Small Entity	

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Extension - 4 months with $0 paid	2254	1	865	865

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**865**

Electronic Acknowledgment Receipt

EFS ID:	8788126
Application Number:	10700329
International Application Number:	
Confirmation Number:	5147
Title of Invention:	Directed wireless communication
First Named Inventor/Applicant Name:	Marcus da Silva
Customer Number:	70130
Filer:	Daniel P. Burke
Filer Authorized By:	
Attorney Docket Number:	29988/40000
Receipt Date:	08-NOV-2010
Filing Date:	03-NOV-2003
Time Stamp:	13:18:09
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Credit Card
Payment was successfully received in RAM	$865
RAM confirmation Number	9444
Deposit Account	504506
Authorized User	BURKE,DANIEL P.
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Petition for review by the Office of Petitions.	PetitionforRevival.pdf	139436 /b774f8e41641952aa98488e114da6cf8e40c55	no	2
Warnings:					
Information:					
2	Request for Continued Examination (RCE)	sb0030e_fill.pdf	699793 e6948239747ac00c483ee2c62fccc1f3a24b5586	no	3
Warnings:					
Information:					
3	Extension of Time	EOT.pdf	31097 97cc2013c561da316862895bf57e0d9a2abbcc11	no	1
Warnings:					
Information:					
4	Petition for review by the Office of Petitions.	RenewedPetition.pdf	158052 9dd9ea41628f18f59113f3665de1eea0506 9b7f8	no	4
Warnings:					
Information:					
5	Power of Attorney	POA.pdf	80315 d2e6d5e81de70fecec85b6e6ee75ae981070d37	no	1
Warnings:					
Information:					
6	Assignee showing of ownership per 37 CFR 3.73(b).	StatementUnder37CFR373b.pdf	99432 6610d004fd58b9df5b85ca9dcbb5f881d28e2af9	no	2
Warnings:					
Information:					
7	Amendment After Final	Amendment.pdf	19849 e83811093226fc8bc3eb8dcb0d7c8d9bf76e2d971	no	1
Warnings:					
Information:					
8	Claims	Claims.pdf	802017 b6d3f08e539e4dec03215669ca9f9b4288daf06	no	20
Warnings:					
Information:					

9	Applicant Arguments/Remarks Made in an Amendment	Remarks.pdf	1139680 0febb8cd7c069d180604d27df6ccod8635f9ad106	no	25
Warnings:					
Information:					
10	Fee Worksheet (PTO-875)	fee-info.pdf	30012 5aed6952b47266f307c590e921c582947b112ff7	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	3199683		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PATENT
DOCKET: 1959-11
CONF. NO.: 5147

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.:		10/700,329
APPLICANT	:	Marcus da Silva et al.
TITLE	:	DIRECTED WIRELESS COMMUNICATION
FILED	:	November 3, 2003
EXAMINER	:	Lee, Justin Ye
TC/A.U	:	2617

FILED VIA EFS

MAIL STOP PETITIONS
COMMISSIONER FOR PATENTS
P. O. Box 1450
Alexandria, Virginia 22313-1450

RENEWED PETITION UNDER 37 CFR 1.137(b)

Dear Sir:

In response to the Decision On Petition mailed May 6, 2010 regarding the above-identified patent application, Applicants respectfully request reconsideration.

As background, a Petition to Revive under 37 CFR 1.137(b) was initially filed on August 28, 2009 by Carl Schwedler for the above-identified patent application. Mr. Schwedler was the attorney for the assignee of the above-identified application at that time,

namely Aequitas Equipment Finance LLC. The Petition included the required reply (RCE and Amendment), the appropriate fees and the required statement of unintentional delay. However, a power of attorney signed by the assignee appointing Mr. Schwedler and a Statement under 37 CFR 3.73(b) were not filed. A Decision on Petition was mailed on November 3, 2009 dismissing the petition as lacking the required reply and the statement of unintentional delay (both of which were signed by Mr. Schwedler) because they were not signed by a proper party.

Mr. Schwedler, on behalf of the assignee at that time, Aequitas Equipment Finance LLC, filed a Renewed Petition Under 37 CFR 1.137(b) on November 18, 2009. With the Renewed Petition, Mr. Schwedler submitted a Power of Attorney executed by the assignee, and a Statement under 37 CFR 3.73(b) showing a chain of title from the inventors of the application to Aequitas Equipment Finance LLC.

This application was subsequently assigned to XR Communications LLC on December 23, 2009, while the Renewed Petition was still pending. The assignment to XR Communications LLC was also recorded on December 23, 2009. On April 26, 2010, a power of attorney was filed by XR Communications LLC appointing Daniel P. Burke as attorney of record to prosecute the application and a Statement Under 37 CFR 3.73(b) setting forth the chain of title from the inventors of the application to XR Communications LLC.

A Decision on Petition to the Renewed Petition was mailed on May 6, 2010 dismissing the renewed petition and taking the position that the power of attorney filed on

November 18, 2009 was improper because it did not contain a complete chain of title from the original owner to the then current assignee of record.

Turning now to the present Renewed Petition, Applicants respectfully request reconsideration. In support of this renewed petition, Applicants respectfully submit that they have now corrected the defects to the originally filed Petition filed on August 28, 2009 and the defects to the Renewed Petition filed on November 18, 2009. Specifically, Applicants submit herewith a Power of Attorney signed by the current assignee of record, namely XR Communications LLC, appointing the undersigned as the attorney of record to prosecute this application. Also submitted herewith is a Statement Under 37 CFR 3.73(b) setting forth a complete chain of title from the inventors of this application to the current assignee of record, namely XR Communications LLC. Applicants respectfully submit that the documentary evidence of the chain of title set forth in the 3.73(b) statement and the attached supplemental sheet were previously submitted to the PTO for recordation. Accordingly, the statement of unintentional delay in the Renewed Petition is proper in that it is now signed by the attorney of record for the current assignee of record.

In addition, Applicants respectfully submit that they have also corrected the defects to the reply filed on August 28, 2009 by filing the enclosed reply (RCE and Amendment) which are signed by a proper party, namely the attorney of record for the current assignee of record.

Applicants respectfully submit that the petition fee in the amount of $810.00 required under 37 CFR 1.137(b)(2) was previously submitted with the originally filed Petition on August 28, 2009. Similarly, the RCE fee in the amount of $405.00 required under 37 CFR

1.17(e) was also previously submitted with the originally filed Petition on August 28, 2009. Accordingly, Applicants respectfully submit that these fees do not need to be resubmitted with the instant Renewed Petition. Nonetheless, the Commissioner is hereby authorized to charge any fee deficiency or credit any overpayment, to Applicants' attorney's Deposit Account No. 50-4506.

Accordingly, Applicants respectfully submit that all requirements of 37 CFR 1.137(b) have been satisfied by the present submission and Applicants respectfully request granting of the present Renewed Petition, so that the application can proceed to further substantive examination.

If the Director has any questions or comments regarding this Renewed Petition, the Director is respectfully requested to contact Applicants' attorney at the telephone number set forth below.

Respectfully submitted,

MARCUS DA SILVA, et al.

Dated: 11/8/10

Daniel P. Burke, (30,735)
DANIEL P. BURKE & ASSOCIATES, PLLC
240 Townsend Square
Oyster Bay, NY 11771
Telephone: 516-802-0560
Facsimile: 516-802-0562

Enclosures: Petition for Revival of Application Under 37 CFR 1.137(b)
Executed Power of Attorney
Statement under 37 CFR 3.73(b)
RCE Transmittal
Amendment in Response to Office Action

Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL
(Submitted Only via EFS-Web)

Application Number	10700329	Filing Date	2003-11-03	Docket Number (if applicable)	1959-11	Art Unit	2617
First Named Inventor	Marcus da Silva			Examiner Name	Justin Ye Lee		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.
Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

- ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____
- ☐ Other _____

☒ Enclosed

- ☒ Amendment/Reply
- ☐ Information Disclosure Statement (IDS)
- ☐ Affidavit(s)/ Declaration(s)
- ☒ Other Renewed Petition Under 37 CFR 1.137(b), Petition for Revival of Application, Executed Power of Attorney, Statement Under 37 CFR 3.73(b)

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____ (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

☐ **The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.**
The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No _____

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature
☐ Applicant Signature

Doc code: RCEX
Doc description: Request for Continued Examination (RCE)

PTO/SB/30 (07-09)
Approved for use through 07/31/2012. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	/Daniel P. Burke/	Date (YYYY-MM-DD)	2010-11-08
Name	Daniel P. Burke	Registration Number	30735

This collection of information is required by 37 CFR 1.114. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

EFS - Web 2.1.15